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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,512	03/29/2004	Cheng-Chung Yu	14321 B	6084
23595	7590	06/01/2006	EXAMINER	
NIKOLAI & MERSEREAU, P.A. 900 SECOND AVENUE SOUTH SUITE 820 MINNEAPOLIS, MN 55402			HON, SOW FUN	
			ART UNIT	PAPER NUMBER
			1772	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/813,512

Applicant(s)

YU, CHENG-CHUNG

Examiner

Sow-Fun Hon

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “dehydrating agent” is properly termed “hydrating agent” since water is a well known hydrating agent used with a hydrophilic adhesive in cement to enhance the strength of the refractory building structure, as evidenced by US 4,663,104 (abstract), in line with Applicant’s disclosure of the inventive regeneration layer composition (page 3, lines 11-20, page 4, lines 1-5). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito (US 4,663,104).

Regarding claims 1-3, Ito teaches a refractory building structure (high-strength inorganic cement article, abstract), comprising a layer comprising a mixture of cement,

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mineral waste such as slag (gypsum slag cement, column 3, lines 29-35) and vinyl acetate polymer as a hydrophilic adhesive (column 3, lines 48-58). The refractory composition layer is a regeneration layer as defined by Applicant's specification (page 3, lines 11-12). Ito teaches at least one non-metallic fiber layer mounted in the regeneration layer wherein the regeneration layer is coated on an outside of the non-metallic fiber layer (reinforcing mineral fiber, column 4, lines 11-12, in the form of roving cloth, column 4, lines 25-30).

Regarding claims 5-8, Ito teaches that the regeneration layer includes water (abstract), which is a chemical agent, and functions as a hydrating agent (see paragraph 1 above), a plasticizer and a strengthening additive (essential component for producing a high-strength cement article, abstract).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-3, 5-8 above, and further in view of Miller (US 3,404,062).

Ito teaches a refractory building structure, comprising: a regeneration layer; and at least one non-metallic fiber layer mounted in the regeneration layer; wherein the

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regeneration layer is coated on an outside of the non-metallic fiber layer; the regeneration layer includes cement, mineral waste, and adhesive such as vinyl acetate, as described above. Ito fails to teach that the adhesive is a white shellac resin.

However, Miller teaches that shellac (column 4, line 64) can be used in place of vinyl acetate (column 4, line 30) for the purpose of providing an adhesive (column 4, lines 20-21). Shellac resin can have a white color.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used white shellac resin in place of vinyl acetate as the adhesive in the regeneration layer of Ito, in order to utilize the physical properties of the white shellac resin, as taught by Miller.

4. Claims 9, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-3, 5-8 above, and further in view of Motoki (US 4,956,013).

Ito teaches a refractory building structure, comprising: a regeneration layer; and at least one non-metallic fiber layer mounted in the regeneration layer; wherein the regeneration layer is coated on an outside of the non-metallic fiber layer; the regeneration layer includes cement, mineral waste, and adhesive, as described above. Ito teaches that the non-metallic fiber layer is in the form of a roving cloth, column 4, lines 25-30).

Ito fails to specify that the non-metallic fiber layer is a non-woven fabric, let alone that it is combined with the regeneration layer to form a sheet plate.

However, Motoki teaches a refractory building structure (column 1, lines 9-11), comprising: a regeneration layer (refractory composition coat, column 5, lines 5-10),

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which includes cement, mineral waste which includes slag (high-sulphate slag cement (column 5, lines 40-45), and a hydrophilic adhesive (most preferred in view of high miscibility with hydraulic cement, column 5, lines 50-60). Motoki teaches that the regeneration layer is coated on an outside of a fiber layer, for which a nonwoven fabric is preferably used for its uneven surface to achieve a more intimate engagement with the regeneration layer (refractory coating material, column 8, lines 26-35) in the formation of a sheet plate (column 8, lines 10-20, fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the non-metallic fiber layer of Ito, in the form of a nonwoven fabric, in order to utilize the uneven surface to achieve a more intimate engagement with the regeneration layer of Ito, and to form a sheet plate, as taught by Motoki.

5. Claims 10-11, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-3, 5-8 above, and further in view of Miller (US 3,404,062).

Ito teaches a refractory building structure, comprising: a regeneration layer; and at least one non-metallic fiber layer mounted in the regeneration layer; wherein the regeneration layer is coated on an outside of the non-metallic fiber layer; the regeneration layer includes cement, mineral waste, and adhesive, as described above. In addition, Ito teaches that the non-metallic fiber layer is in the form of a roving cloth, column 4, lines 25-30).

Regarding claims 10-11, Ito fails to teach a plurality of non-metallic fiber layers mounted in the regeneration layer, let alone that they are arranged in a parallel manner.

However, Miller teaches that a plurality of non-metallic fiber layers arranged in a parallel manner (packing directionalized groups of fiber radially around a central core, column 7, lines 35-40) provides a uniform self-supporting fiber pack (column 7, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a plurality of the non-metallic fiber layers, arranged in a parallel manner, in the refractory building structure of Ito, in order to provide the desired uniformity of structural support, as taught by Miller.

Regarding claims 13-14, Ito fails to teach that the regeneration layer is combined with the at least one non-metallic fiber layer to form a substantially semi-cylindrical plate, let alone a substantially tubular structure.

However, Miller teaches that a plurality of non-metallic fiber layers can be configured and bonded to form a substantially tubular structure (packing directionalized groups of fiber radially around a central core, and bonding, column 7, lines 35-40) for the purpose of providing a uniform self-supporting fiber pack (column 7, lines 35-45). Miller teaches that the tubular structure can then be sliced (column 8, lines 1-5) to form structures such as substantially semi-cylindrical plate. The configuration of the claimed structure is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed receptacle is significant. See MPEP 2144.04.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have combined the regeneration layer with the non-

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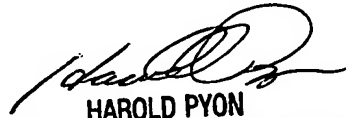
metallic fiber layer in the refractory building structure of Ito, to form a substantially semi-cylindrical plate, or a substantially tubular structure, in order to provide the desired structural shape, as taught by Miller.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon  
Sow-Fun Hon  
05/30/06

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772 5/30/06